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10/532,767	04/27/2005	Tomotada Kamei	2005_0731A	2691

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EXAMINER	
LAMB, CHRISTOPHER RAY	

ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/532,767

Applicant(s)

KAMEI, TOMOTADA

Examiner

Christopher R. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 17-20, 22 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 17-20, 22 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on October 26th, 2006. These drawings are acceptable.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15, 17, 19, 20, 22, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Call et al. (US 5,309,461) in view of Kimbrough (US 6,707,833).

Regarding claim 15:

Call discloses:

A semiconductor laser driving device comprising:

a semiconductor laser (Fig. 1: 14);

a photodetecting element for receiving a part of light emitted from the semiconductor laser and converting the part of light into an electric signal corresponding to a light amount (column 3, lines 35-50);

a laser driving circuit for inputting a driving signal into the semiconductor laser in such a manner that an average value of the electric signal coincides with a given target value (column 4, lines 15-55);

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a high-frequency superimposing circuit for superimposing a high-frequency signal over the driving signal (column 4, line 65 to column 6, line 15); and

a high-frequency superimposing control section for controlling an amplitude of the high-frequency signal (column 4, line 65 to column 6, line 15).

Call does not disclose:

"wherein the high-frequency superimposing control section is operable to control the amplitude such that a peak-to-average ratio that is a ratio of a peak value of the electric signal with respect to the average value of the electric signal does not increase above a given first reference value."

However, note that Call does disclose that the modulation depth of the high-frequency superimposed signal must be controlled (column 3, line 55-68).

Kimbrough discloses a method for controlling the modulation depth of a laser signal. Kimbrough discloses controlling the amplitude in such a manner that a peak-to-average ratio that is a ratio of a peak value of the electric signal with respect to the average value of the electric signal does not increase above a given first reference level (column 1, line 60 to column 2, line 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Call as taught by Kimbrough to include wherein the high-frequency superimposing control section is operable to control the amplitude such that a peak-to-average ratio that is a ratio of a peak value of the electric signal with respect to the average value of the electric signal does not increase above a given first reference level.

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The motivation would have been to avoid the problems with the prior art method disclosed by Call (column 4, lines 1-15: Kimbrough's message does not have these difficulties).

Regarding claim 17:

Call in view of Kimbrough further comprises a peak detecting circuit for receiving the electric signal from the photodetecting element and for detecting the peak value of the electric signal, wherein the high-frequency superimposing control section is operable to calculate the peak-to-average ratio based on the peak value detected by the peak detecting circuit (this is all necessary for the teaching of Kimbrough).

Regarding claim 19:

In Call in view of Kimbrough the high-frequency superimposing control section is operable to control the amplitude such that the amplitude decreases as the temperature of the semiconductor laser increases (this is inherent: without the feedback loop, the peak-to-average ratio would increase as the temperature increases. Since Call in view of Kimbrough maintains the peak-to-average ratio at a steady value, it must decrease the amplitude of the current as part of the monitoring of the ratio).

Regarding claim 20:

In Call in view of Kimbrough the high-frequency superimposing control section is operable to control the amplitude such that, the amplitude decreases as the average value increases, if the average value is less than a given threshold value, and the amplitude increases as the average value increases if the average value is larger than the threshold value (this is an inherent consequence of keeping the ratio constant).

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Regarding claim 22:

In Call in view of Kimbrough the high-frequency superimposing control section comprises a data acquiring section for acquiring the first reference value by reading out, from an optical recording medium from which information is to be reproduced by use of the emitted light and on which an allowance value of a peak value of the emitted light is recorded, the recorded allowance value (Call discloses that the parameters for reading from the disc are recorded on it: column 1, lines 35-45. In Call in view of Kimbrough the reference value is such a parameter).

Regarding claim 25:

Call in view of Kimbrough does not disclose wherein the semiconductor laser is operable to emit the light having a wavelength of $390\text{nm} < \lambda < 420\text{nm}$.

The Examiner takes Official Notice that lasers of this wavelength are well known in the art of optical recording media.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a laser between 390nm and 420nm because the Examiner takes Official Notice that lasers of this wavelength are well known in the art (the motivation would have been to have a device compatible with media designed for these wavelengths).

Regarding claim 26:

The semiconductor laser driving device of Call in view of Kimbrough is an optical head device.

Regarding claim 27:

The optical head device of Call in view of Kimbrough is part of an optical information processing device.

Regarding claim 28:

Call in view of Kimbrough discloses an optical recording medium from which information is to be reproduced by the semiconductor laser driving device of claim 22 and which has the allowance value recorded thereon (Call: column 1, lines 25-50, as discussed in the rejection of claim 22).

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Call in view of Kimbrough as applied to claim 15 above, and further in view of Sakamoto et al. (US 5,005,164).

Call in view of Kimbrough discloses a semiconductor laser driving device as discussed above.

Call in view of Kimbrough does not disclose:

"a temperature sensor for measuring a temperature of the semiconductor laser;
and

a storing section for storing data indicative of a relationship of the average value, the temperature, the amplitude, and the peak-to-average ratio,

wherein the high-frequency superimposing control section is operable to read out the data from the storing section and control the amplitude based on the data, the average value, and the temperature."

Sakamoto discloses a temperature sensor for measuring a temperature of the semiconductor laser, and a storing section for storing data indicative of a relationship

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between laser parameters and the temperature (column 15, lines 13-25). Sakamoto discloses that this allows the laser power setting means to compensate for temperature deviations (column 15, lines 13-25).

It would have been obvious to one of ordinary skill in the art to include in Call in view of Kimbrough a temperature sensor for measuring a temperature of the semiconductor laser; and a storing section for storing data indicative of a relationship of the average value, the temperature, the amplitude, and the peak-to-average ratio, wherein the high-frequency superimposing control section is operable to read out the data from the storing section and control the amplitude based on the data, the average value, and the temperature, as taught by Sakamoto (Sakamoto teaches storing various parameters: the specific parameters of the peak-to-average ratio, etc. are already present in Call in view of Kimbrough).

The motivation would have been to compensate for the temperature, as taught by Sakamoto.

Response to Arguments

5. Applicant's arguments with respect to claims 15, 17-20, 22, and 25-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Minami et al. (US 5,175,722); Ishimaru et al. (US 5,793,736); Uemura (US 5,146,464).


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 1/18/07


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